

CLAIMS

What is claimed is:

1. A polyester containing one or more free COOH groups and having a carboxyl to hydroxyl ratio greater than one, wherein said polyester
5 contains a member selected from the group consisting of L-lactic acid, D-lactic acid, DL-lactic acid, malic acid, citric acid, ϵ -caprolactone, p-dioxanone, ϵ -caproic acid, alkylene oxalate, cycloalkylene oxalate, alkylene succinate, β -hydroxybutyrate, substituted or unsubstituted trimethylene carbonate, 1,5-dioxepan-2-one, 1,4-dioxepan-2-one, glycolide, glycolic acid, L-lactide, D-lactide,
10 DL-lactide, meso-lactide, and any optically active isomers, racemates or copolymers thereof, provided that citric acid, ϵ -caprolactone and glycolide are members of the polyester.
2. A polyester according to claim 1, wherein the polyester comprises citric acid, ϵ -caprolactone and glycolide.
- 15 3. A polyester according to claim 2, wherein the ratio of ϵ -caprolactone to glycolide in the polyester is from 90 ϵ -caprolactone : 10 glycolide to 99 ϵ -caprolactone : 1 glycolide.
4. A polyester according to claim 3, wherein the ratio of ϵ -caprolactone to glycolide in the polyester is 97 ϵ -caprolactone : 3 glycolide.
- 20 5. A composition comprising a polyester according to claim 1 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.
6. A composition comprising a polyester according to claim 2
25 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.
7. A composition comprising a polyester according to claim 3
30 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.

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8. A composition comprising a polyester according to claim 4 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.

5 9. A polyester containing one or more free COOH groups and having a carboxyl to hydroxyl ratio greater than one, wherein said polyester contains a member selected from the group consisting of L-lactic acid, D-lactic acid, DL-lactic acid, malic acid, citric acid, tartaric acid, ϵ -caprolactone, p-dioxanone, ϵ -caproic acid, alkylene oxalate, cycloalkylene oxalate, alkylene succinate, β -hydroxybutyrate, substituted or unsubstituted trimethylene carbonate, 1,5-dioxepan-2-one, 1,4-dioxepan-2-one, glycolide, glycolic acid, L-lactide, D-lactide, DL-lactide, meso-lactide, and any optically active isomers, racemates or copolymers thereof, provided that tartaric acid is a member of the polyester.

10 10. A polyester according to claim 9, wherein the polyester comprises L-lactic acid or D-lactic acid; or wherein the polyester comprises L-lactic acid or D-lactic acid and glycolic acid.

15 11. A polyester according to claim 9, wherein the polyester comprises tartaric acid, ϵ -caprolactone and trimethylene carbonate.

20 12. A polyester according to claim 11, wherein the ratio of ϵ -caprolactone to trimethylene carbonate in the polyester is from 90 ϵ -caprolactone : 10 trimethylene carbonate to 99 ϵ -caprolactone : 1 trimethylene carbonate.

25 13. A polyester according to claim 12, wherein the ratio of ϵ -caprolactone to trimethylene carbonate in the polyester is 98 ϵ -caprolactone : 2 trimethylene carbonate.

30 14. A composition comprising a polyester according to claim 9 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.

15. A composition comprising a polyester according to claim 11 ionically conjugated to one or more bioactive polypeptide comprising at least one

effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.

16. A composition comprising a polyester according to claim 12 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.

17. A composition comprising a polyester according to claim 13 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.

18. A composition comprising a polyester according to claim 10 ionically conjugated to one or more bioactive polypeptide comprising at least one effective ionogenic amine, wherein at least 50%, by weight, of the polypeptide present in the composition is ionically conjugated to the polyester.

19. A composition according to claim 5, wherein the bioactive polypeptide is selected from the group consisting of LHRH, somatostatin, bombesin/GRP, calcitonin, bradykinin, galanin, MSH, GRF, amylin, tachykinins, secretin, PTH, CGRP, neuromedins, PTHrP, glucagon, neurotensin, ACTH, GHRP, GLP, VIP, PACAP, enkephalin, PYY, motilin, substance P, NPY, TSH, and analogs or fragments thereof.

20. A composition according to claim 14, wherein the bioactive polypeptide is selected from the group consisting of LHRH, somatostatin, bombesin/GRP, calcitonin, bradykinin, galanin, MSH, GRF, amylin, tachykinins, secretin, PTH, CGRP, neuromedins, PTHrP, glucagon, neurotensin, ACTH, GHRP, GLP, VIP, PACAP, enkephalin, PYY, motilin, substance P, NPY, TSH, and analogs or fragments thereof.

21. A composition according to claim 18, wherein the bioactive polypeptide is selected from the group consisting of LHRH, somatostatin, bombesin/GRP, calcitonin, bradykinin, galanin, MSH, GRF, amylin, tachykinins, secretin, PTH, CGRP, neuromedins, PTHrP, glucagon, neurotensin, ACTH, GHRP, GLP, VIP, PACAP, enkephalin, PYY, motilin, substance P, NPY, TSH, and analogs or fragments thereof.

22. A composition according to claim 19, wherein the bioactive polypeptide is selected from the group consisting of LHRH, somatostatin and analogs or fragments thereof.

23. A composition according to claim 20, wherein the bioactive
5 polypeptide is selected from the group consisting of LHRH, somatostatin and analogs or fragments thereof.

24. A composition according to claim 21, wherein the bioactive polypeptide is selected from the group consisting of LHRH, somatostatin and analogs or fragments thereof.

10 25. A composition according to claim 22, wherein the LHRH analogue is of the formula $\text{pGlu-His-Trp-Ser-Tyr-D-Trp-Leu-Arg-Pro-Gly-NH}_2$ and the somatostatin analogue is of the formula $\text{H}_2\text{N-}\beta\text{-D-Nal-Cys-Tyr-Trp-Lys-Val-Cys-Thr-NH}_2$, wherein the two Cys residues of the somatostatin analogue are bonded to each other.

15 26. A composition according to claim 23, wherein the LHRH analogue is of the formula $\text{pGlu-His-Trp-Ser-Tyr-D-Trp-Leu-Arg-Pro-Gly-NH}_2$ and the somatostatin analogue is of the formula $\text{H}_2\text{N-}\beta\text{-D-Nal-Cys-Tyr-Trp-Lys-Val-Cys-Thr-NH}_2$, wherein the two Cys residues of the somatostatin analogue are bonded to each other.

20 27. A composition according to claim 24, wherein the LHRH analogue is of the formula $\text{pGlu-His-Trp-Ser-Tyr-D-Trp-Leu-Arg-Pro-Gly-NH}_2$ and the somatostatin analogue is of the formula $\text{H}_2\text{N-}\beta\text{-D-Nal-Cys-Tyr-Trp-Lys-Val-Cys-Thr-NH}_2$, wherein the two Cys residues of the somatostatin analogue are bonded to each other.

25 28. A composition according to claim 19, wherein said composition is in the form of a rod.

29. A composition according to claim 20, wherein said composition is in the form of a rod.

30 30. A composition according to claim 21, wherein said composition is in the form of a rod.

31. A composition according to claim 28, wherein said rod has a coating of a polyester.

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32. A composition according to claim 31, wherein the polyester coating the rod is an absorbable polyester.

33. A composition according to claim 32, wherein the absorbable polyester contains one or more free COOH groups and having a carboxyl to hydroxyl ratio greater than one, wherein said polyester contains a member
5 selected from the group consisting of L-lactic acid, D-lactic acid, DL-lactic acid, malic acid, citric acid, tartaric acid, ϵ -caprolactone, p-dioxanone, ϵ -caproic acid, alkylene oxalate, cycloalkylene oxalate, alkylene succinate, β -hydroxybutyrate, substituted or unsubstituted trimethylene carbonate, 1,5-dioxepan-2-one, 1,4-
10 dioxepan-2-one, glycolide, glycolic acid, L-lactide, D-lactide, DL-lactide, meso-lactide, and any optically active isomers, racemates or copolymers thereof.

34. A composition according to claim 33, wherein the absorbable polyester coating the rod is the same as the polyester comprised in the composition.

15 35. A composition according to claim 29, wherein said rod has a coating of a polyester.

36. A composition according to claim 35, wherein the polyester coating the rod is an absorbable polyester.

37. A composition according to claim 36, wherein the absorbable
20 polyester contains one or more free COOH groups and having a carboxyl to hydroxyl ratio greater than one, wherein said polyester contains a member selected from the group consisting of L-lactic acid, D-lactic acid, DL-lactic acid, malic acid, citric acid, tartaric acid, ϵ -caprolactone, p-dioxanone, ϵ -caproic acid, alkylene oxalate, cycloalkylene oxalate, alkylene succinate, β -hydroxybutyrate,
25 substituted or unsubstituted trimethylene carbonate, 1,5-dioxepan-2-one, 1,4-dioxepan-2-one, glycolide, glycolic acid, L-lactide, D-lactide, DL-lactide, meso-lactide, and any optically active isomers, racemates or copolymers thereof.

38. A composition according to claim 37, wherein the absorbable polyester coating the rod is the same as the polyester comprised in the
30 composition.

39. A composition according to claim 30, wherein said rod has a coating of a polyester.

40. A composition according to claim 39, wherein the polyester coating the rod is an absorbable polyester.

41. A composition according to claim 40, wherein the absorbable polyester contains one or more free COOH groups and having a carboxyl to hydroxyl ratio greater than one, wherein said polyester contains a member selected from the group consisting of L-lactic acid, D-lactic acid, DL-lactic acid, malic acid, citric acid, tartaric acid, ϵ -caprolactone, p-dioxanone, ϵ -caproic acid, alkylene oxalate, cycloalkylene oxalate, alkylene succinate, β -hydroxybutyrate, substituted or unsubstituted trimethylene carbonate, 1,5-dioxepan-2-one, 1,4-dioxepan-2-one, glycolide, glycolic acid, L-lactide, D-lactide, DL-lactide, meso-lactide, and any optically active isomers, racemates or copolymers thereof.

42. A composition according to claim 41, wherein the absorbable polyester coating the rod is the same as the polyester comprised in the composition.

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